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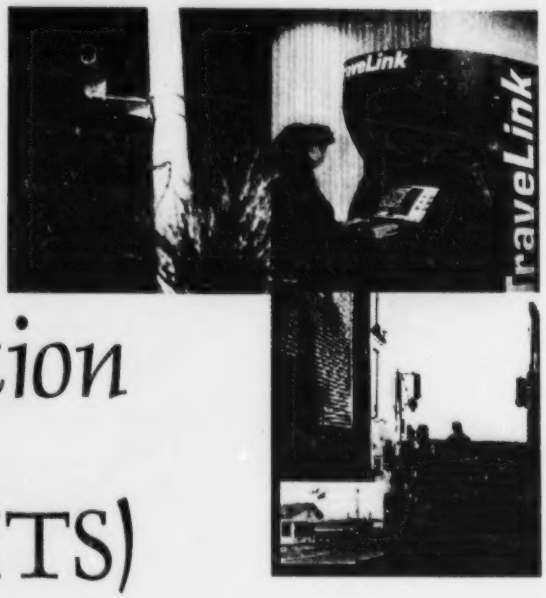
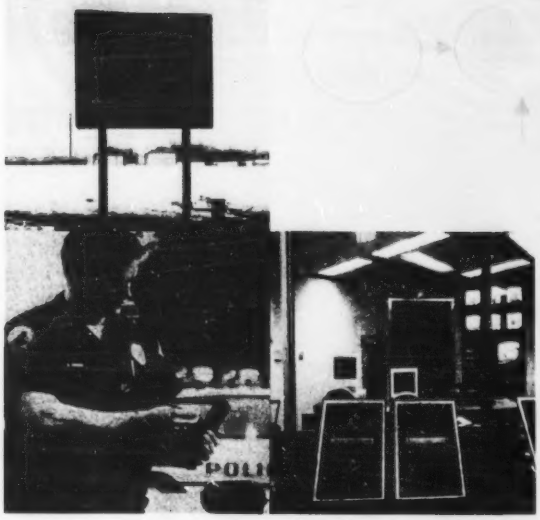


Intelligent Transportation Systems (ITS) Strategic Plan



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Alberta Infrastructure

Intelligent Transportation Systems (ITS)

Strategic Plan

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Reviewed by the Management Forum on August 1 and 29, 2000

Approved by Mr. E.R. McLellan, Deputy Minister, on September 7, 2000

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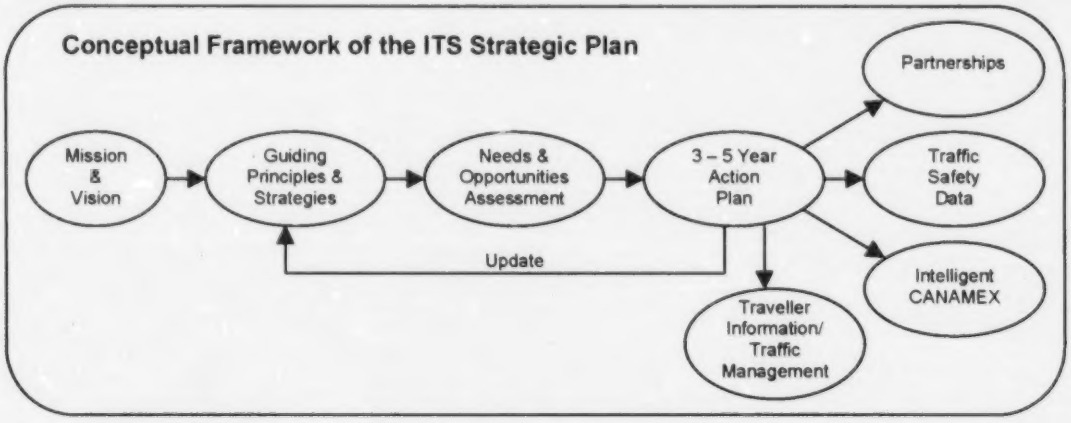
1. Introduction

The new millennium will see Alberta continue to experience considerable growth in exports and tourism. Increasing e-commerce and value-added production are shifting Alberta's traditional resource based economy to a new economy that relies heavily on just-in-time performance and integrated transportation logistics systems. This new economy requires safe and more efficient transportation services and highway infrastructure to sustain growth and competitiveness.

Governments are now turning to the emerging and evolving technologies known as intelligent transportation systems (ITS) for solutions to help them meet the many challenges and demands placed on transportation systems.

This strategic plan, developed by a task group of divisional representatives within Alberta Infrastructure, provides a vision for the future of ITS in Alberta's transportation system and outlines strategies for Alberta Infrastructure to develop and deploy these technologies to improve the safety, efficiency and capacity of the provincial transportation system. The strategies focus on a coordinated and controlled approach to the integration of ITS into the department's operations. Based on inputs collected from department staff and a review of existing and potential departmental ITS applications (Appendix A shows the results of the review), this strategic plan recommends a 3 to 5 year action plan, and identifies a number of priority highways as an ITS testbed. The following diagram illustrates the conceptual framework of this plan:



The strategic plan is a living and flexible document that provides strategies and a framework based on current needs and technologies. Due to the rapid-changing nature of technology, it is impossible to identify all existing ITS opportunities. This strategic plan will require regular refinement and updating over time to capture new technologies and new policies and practices.

2. Background

What is ITS?

ITS is about adaptive, intelligent integration of vehicles, drivers and the transportation system. Integration, through advanced information processing (computers), of communications and sensory technologies and management strategies, can improve the safety, capacity and

efficiency of the transportation system. Communications and information processing technologies allow information on the transportation system – both vehicles and infrastructure – and real-time road and environmental conditions, to be collected, processed and disseminated for better decision-making. Examples of ITS applications include changeable message signs that can display real-time information collected by sensors and warn motorists of collisions, road and weather conditions; and automated vehicle inspection stations that can electronically identify and provide expeditious clearance to commercial vehicles. Appendix B provides references for more background information on ITS.

What are the Benefits of ITS?

Through effective integration with the transportation system, ITS provide a broad spectrum of technology-based tools that aid the development of solutions to save lives, money, time and the environment. ITS allow road authorities to better manage and maintain the transportation system and enforce regulations by providing real-time and reliable information. ITS technologies can build on each other, providing higher order benefits through system integration and assistance to multiple users. As technologies change and evolve, additional benefits will continue to be identified. However, some examples are:

Improve Safety: Pre-trip and en-route road and weather information systems can advise motorists of traffic, road, environmental and emergency conditions. Real-time information can assist route planning, ease frustration and reduce road rage. Congestion reduction measures can reduce travel time and collisions. Surveillance systems and wireless emergency location systems can automatically detect incidents and trigger the emergency notification and dispatch process. The end result of these applications is the reduction in loss of life, injuries and costs, which benefits society as a whole.

Did you know?

In 1998, there were over 98,000 traffic collisions in Alberta which resulted in over 25,000 injuries. The societal costs of these collisions are enormous. Real-time information, congestion reduction and emergency notification may help reduce these costs.

Increase Productivity: Automatic vehicle identification, screening of safety records and vehicle weights, can provide a seamless commercial vehicle system, increase the efficiency of the inspections services, and provide pre-clearance opportunities for commercial vehicles. Real-time integrated transportation system data collection can improve the efficiency of the data collection process and facilitate traffic forecasting and planning. ITS can provide information about transportation trends and the performance of the transportation system, which can lead to better management and operations, more efficient allocation of resources, and improved system performance.

Did you know?

Oregon's Green Light Project uses weigh-in-motion and automatic vehicle identification systems to electronically verify a vehicle's weight, registration and safety status, and grant weigh station bypass. Over 200,000 bypasses were given in 1999. It is estimated that over the next 10 years, the system will preclear over 2.88 million trucks, saving industry over $10.7 million in operating costs while saving 144,000 hours in travel.

Source: "Nomination for the Oregon Green Light Project", ITSA Award nomination, December 1999.

Did you know?

The US Department of Transportation estimates taxpayers can save up to 35% on infrastructure investment as a result of ITS deployment.

Source: US DOT "Intelligent Transportation Systems Benefits: 1999 Update".

Reduce Costs: The integration of ITS into the existing transportation system is becoming simpler, cheaper and more cost effective. With increasing congestion and the rising costs of providing additional infrastructure, ITS offer innovative alternatives to capital improvements. Once integrated, ITS can increase the efficient movement of vehicles, thereby increasing roadway capacity and reducing or delaying the need for additional infrastructure.

Help the Environment: Incident management systems can improve emergency clearance times and reduce vehicle delay. Automatic vehicle identification at inspection stations and border crossings can reduce the number of commercial vehicle stops and starts. Real-time adaptive traffic signal controls can reduce travel times and vehicle idling. The effect of these applications is a reduction in fuel consumption and greenhouse gas emissions.

Did you know?

Per major incident, San Antonio's TransGuide incident management system is estimated to reduce fuel consumption by 2600 gallons and average delay by 700 vehicle-hours. This translates into annual savings of $1.65 million to commuters.

Source: US DOT "Intelligent Transportation Systems Benefits: 1999 Update".

Current Situation at Alberta Infrastructure

The department has implemented a handful of ITS applications. However, ITS projects are undertaken on an ad hoc and as required basis, and there is a need for a more systematic and focused approach to ITS development and deployment. A review of the department's weigh-in-motion operation also recommended that an ITS strategic plan be developed. With the take-over of key primary highways in cities, the department may be looked upon to provide ITS in urban as well as rural areas.

Alberta is in an enviable situation with respect to ITS deployment. The population is such that critical congestion is not yet a major issue. The existing number of ITS applications is low enough to allow for an integrated approach to development.

Other Canadian jurisdictions are moving forward with ITS development. Appendix C gives an overview of ITS in Canada.

3. Mission, Vision and Objectives

The **Mission** of this ITS strategic plan is twofold:

- to assist Alberta Infrastructure in meeting its mandate of providing a safe and effective provincial transportation system through the planning, deployment and integration of intelligent transportation systems technologies; and
- to position Alberta Infrastructure to take advantage of the rapid develcpment of technology and to maintain and improve Alberta's competitiveness in a fast-moving knowledge-based economy.

The **Vision** for the future of ITS in Alberta's provincial transportation system is to have well developed and integrated systems in place for:

- the travelling public to make and adjust their travelling plans;
- Alberta Infrastructure and partners to better manage, operate and maintain the transportation infrastructure and improve the safety of the travelling public; and
- commercial vehicle operators to improve their productivity, efficiency and competitiveness.

The **Objectives** of this plan are to:

- bring an articulated and systematic approach to planning, deploying and integrating ITS technologies that conform to the North American ITS Architecture; and
- serve as a roadmap for Alberta Infrastructure to set the direction and strategies for future ITS investment and deployment.

4. Guiding Principles and Strategies

The following are key principles and strategies to guide Alberta Infrastructure to develop and deploy ITS.

Principle No. 1	ITS are developed and deployed in a coordinated, systematic and cost-effective manner.

Strategy

Establish a permanent ITS Standing Committee, championed by an Executive Sponsor, to coordinate all ITS initiatives within Alberta Infrastructure. This Committee will be responsible for coordinating all ITS initiatives, updating the ITS strategic plan, keeping abreast and advising the department of new ITS technologies and opportunities, and representing the department in coordinating with other levels of government and external stakeholder groups on all ITS related matters.

Stage the development and deployment of ITS to build on past experiences (both successes and failures) and existing accepted architecture in an incremental manner. It is important that the costs and benefits of ITS deployment be evaluated and that the performance and effectiveness of existing and future ITS initiatives be closely monitored and measured.

Adopt a building block, modular approach to make use of proven technologies, and focus resources on priority roadway sections that will reap the greatest benefits.

Principle No. 2	**Alberta Infrastructure's ITS applications should be seamlessly integrated, compatible with systems in neighbouring provinces and states, and meet North American ITS architecture standards.**
Strategy	Cooperate and participate with Transport Canada and other jurisdictions and agencies in the development of the Canadian and regional ITS architectures to ensure interoperability and integration of ITS technologies, and work with industry and other stakeholder groups to develop ITS architecture and technical standards.

Principle No. 3	**ITS are well integrated in the planning, design, construction and maintenance of the transportation infrastructure.**
Strategy	Integrate ITS early in the planning and design process, and make provisions for future ITS installations. Installation of ITS devices should be coordinated with construction and maintenance activities to minimize traffic interruption and costs. ITS technologies should be used to meet specific needs of the department and enhance service delivery.

Principle No. 4	**ITS development and deployment are sustainable.**
Strategy	With the increasing awareness of ITS, program managers should allow for ITS initiatives in their program budgets. ITS deployment should continue to be funded by sponsoring areas. The department should actively pursue opportunities for cost-sharing through partnerships with the federal government, other provincial and municipal governments, and the private sector.

Principle No. 5	**Alberta is open to ITS technologies, partnerships, new knowledge and innovation.**
Strategy	Show the department's commitment to ITS by establishing the ITS Standing Committee and adopting the strategic plan. The Standing Committee will keep abreast of the latest technological developments, and promote ITS development and deployment by entering into partnerships with the private sector, stakeholder groups, municipalities and other governments in undertaking joint projects. To be proactive and responsive, the Standing Committee will assess and react to initiatives and proposals from external groups, with a positive view to leveraging contributions from others to maximize mutual benefits, and leveraging the latest ITS developments to improve the department's business.

Principle No. 6 — **Alberta Infrastructure's staff and partners are well informed of the potentials and limitations of ITS and of the department's direction.**

Strategy

Raise the awareness of ITS by collaborating with the academic and research community and suppliers, such as universities, the Centre for Transportation Engineering and Planning (C-TEP), and the Van Horne Institute, to organize conferences, demonstrations and seminars on ITS.

Did you know?

A lack of understanding and knowledge of ITS has been identified as one of the major barriers to ITS deployment in many jurisdictions.

Source: TAC Multi-Modal Council 1999 ITS survey.

Develop and maintain an interactive web site on the internet/intranet, posting information on ITS initiatives and latest developments and with links to other ITS sites.

5. Priority Highways - an ITS Testbed

As the provincial highway system is extensive, it would be impractical to deploy ITS applications on all provincial highways. It is important to focus the department's resources on areas where the needs and the potential benefits are the greatest. However, there are some applications, such as traffic safety data collection, that are not roadway specific.

For the purpose of prioritizing for ITS applications, the following highways should receive first priority and serve as a testbed for ITS initiatives:

- Highway 2 between Calgary and Edmonton, including Deerfoot Trail in Calgary and the southwest section of Anthony Henday Drive in Edmonton,
- Highway 1 between Calgary and Banff, and
- Highway 4 at the Coutts border crossing.

Over time, ITS technologies can also be applied to other major highways, for example:

- Highway 43 between Edmonton and Grande Prairie,
- Highway 16,
- Highway 1 east of Calgary,
- Highways 2 and 4 between Coutts and Calgary, and
- sections of Highway 63 north and south of Fort McMurray.

6. Recommended 3 - 5 Year Action Plan

The recommended action plan focuses on four parallel but interconnected streams of activity over the next 3 to 5 years. In accordance with the systematic and incremental approach of this Strategic Plan, the action items identified are the first steps toward the long-term deployment goals. These short-term action items concentrate on planning for future ITS deployment and monitoring ITS developments. Significant deployment is likely to be beyond the 3 to 5 year timeframe identified, and will be subject to the availability of funding and resources.

The recommended action plan is mostly based on a review of the department's existing and long-term ITS needs and opportunities as shown in Appendix A. The lead department area is identified after each action item.

a) Partnerships for knowledge and success

- Establish a permanent ITS Standing Committee that will coordinate all ITS initiatives. [lead - Policy and Planning]
- Raise the awareness of ITS by working in conjunction with the Centre for Transportation Engineering and Planning (C-TEP) or universities to organize seminars, developing an informative web site, etc. [lead - Technical Standards]
- Continue to participate in the development of Canadian ITS architecture and standards. [lead - Policy and Planning]
- Keep abreast of ITS development in other jurisdictions through national and international forums and ongoing information sharing. [lead - ITS Standing Committee]
- Work with ITS product and service suppliers to explore new technologies. [lead - Technical Standards]
- Ensure access to future fibre-optic and telecommunications networks for ITS applications through negotiation and development of agreements with telecommunications companies, and through work with Alberta Innovation and Science on the development of the high-speed, high bandwidth Internet network. [lead - Technical Standards]

Current Situation and Estimated Timeline

Many of the items under this activity stream will be of an ongoing nature. Work is currently underway on the development of the Canadian ITS architecture. An ITS awareness seminar, with speakers from Transport Canada, ITS Canada, the Cities of Edmonton and Calgary, consultants, suppliers, etc., was held on September 8, 2000.

b) Traffic Safety Data Collection

This project will allow law enforcement officers to have direct access to complete and accurate driver and vehicle information, allowing them to use a full scope of information to make immediate decisions in the areas of traffic safety. The capture of the information, on a province-wide basis, will lead to more accurate and timely safety information which will be used to develop and monitor safety programs for all Albertans.

This project aims to implement an electronic capture of violation, collision and inspection information at the scene of an event by law enforcement members. The use of smart forms, barcode scanners, Global Positioning System (GPS), etc., will increase data accuracy and reduce data input. A wide range of stakeholders have been involved in the development of a concept. The following steps are to be taken:

- Continue to prepare a detailed systems requirement document and business case options. [lead - Driver Safety]

- Pursue unique funding arrangements such as fees attached to driver licensing services (license registrations). Electronic Data Systems Corporation (EDS), our technology partner, is looking at funding this project with payback over time as one option for consideration. [lead - Driver Safety]

- Contact and investigate systems that other jurisdictions have implemented. [lead - Driver Safety]

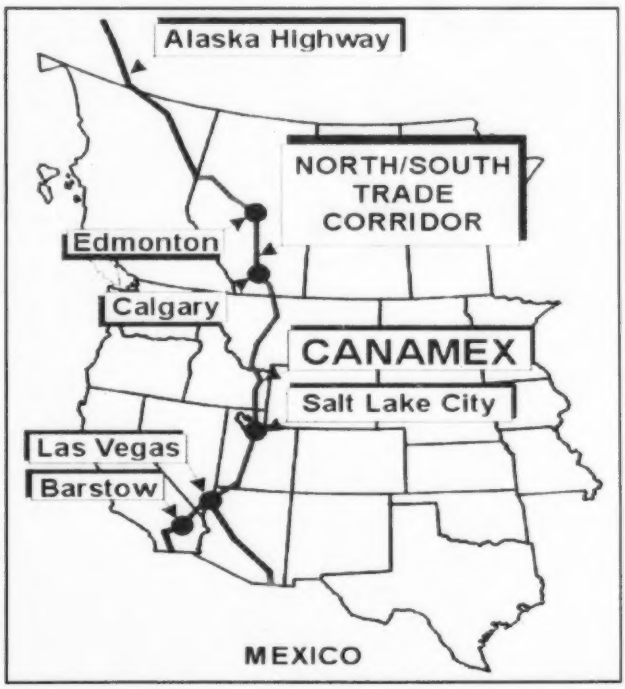
Current Situation and Estimated Timeline

The items under this activity stream are currently ongoing and will likely be completed by December 2000. The next steps would be to seek approval of the project plan and funding from the Deputy Ministers of involved departments. Once this approval is received, a detailed project implementation plan will be developed. This will require extensive consultation and collaboration with stakeholders.

c) Intelligent CANAMEX Trade Corridor

With the growth of trade and commercial vehicle traffic, governments are now facing the challenge of being more efficient in the regulation of commercial vehicle weights and dimensions, and mechanical fitness, without creating unnecessary delays, impeding freight mobility, and losing competitiveness. ITS can play a significant part in reducing delays through reduced paperwork, etc.

The US is a significant trading partner not just for Alberta, but for other Canadian provinces. Many provinces have already taken steps to demonstrate or implement ITS on their north-south trade corridors (British Columbia's Pacific Rim International Trade Corridor, Manitoba's North America International Trade Corridor, and Ontario's Michigan-Ontario-New York ITS Border Crossing Systems).



Over 80% of Alberta's international exports are US bound. Truck traffic growth on the North-South CANAMEX Trade Corridor is expected to continue, particularly with the completion of the four-laning by 2007. Alberta should take a more proactive approach to planning ITS on the CANAMEX Trade Corridor, particularly at the Coutts border crossing.

ITS offer a broad range of opportunities to improve commercial vehicle operations

(CVO). Some of these technologies include electronic clearance, weigh-in-motion, inspection support systems, on-board safety monitoring, etc. To ensure system compatibility and maximize the benefits, an Intelligent Transportation Systems/Commercial Vehicle Operations (ITS/CVO) plan is required to define system needs, address institutional and deployment barriers, identify opportunities, develop a system architecture to ensure interoperability with our CANAMEX state partners and neighbouring provinces and territories, and recommend a prioritized program of deployment. For the next 3 to 5 years, the following steps should be taken:

- Initiate discussion with the US and Canadian federal governments (Transport Canada and Canada Customs and Revenue Agency) and CANAMEX state partners to proceed with an ITS/CVO plan for CANAMEX. Upon agreement of all parties, proceed with developing a detailed terms of reference for the ITS/CVO plan. [lead - Policy and Planning]

- Develop a cost-shared comprehensive Intelligent Transportation Systems/Commercial Vehicle Operations Plan for CANAMEX. [lead - Policy and Planning]

Current Situation and Estimated Timeline

Design is underway for a joint Canada/US border crossing facility at Highway 4 in Coutts. There will be provisions for ITS applications at the joint facility. The department has ongoing discussions with the US and Canadian federal governments and CANAMEX state partners on a number of harmonization issues regarding CANAMEX. Due to the number of stakeholders involved and the complexity of the issues, the negotiation for the development of an ITS/CVO plan may take some time to complete. Upon agreement of all parties, the development of the plan will proceed.

d) Traveller Information/Traffic Management System

The actions under this activity stream focus on identifying the needs along the proposed ITS testbed highways and addressing these needs through relevant ITS technologies such as road weather information systems, incident management systems, and traffic signal coordination. Two components have been identified.

Traffic Control [lead - Technical Standards]

The department has over 100 traffic signals with more to come through the take-over of secondary highways. A significant number of the traffic signal controllers are reaching the end of their service life and will require upgrades. To ensure that upgrades occur systematically and include ITS capabilities, the department should:

- Review the condition of traffic signal controllers and related components currently used at traffic signal locations across the province (including two digit and three digit provincial highways and provincial highways through cities that will be under the department's jurisdiction), and develop an upgrade plan taking into account available funding.

- Based on the results of the review, proceed with upgrading traffic signal controllers and related components under Alberta Infrastructure's responsibility. The upgrades could include ITS capabilities, such as real-time equipment monitoring, data downloads and remote signal time changes and coordination.

Traveller Information/Traffic Management [lead - Technical Standards]

The department currently has three changeable message signs (CMS) and one operational highway advisory radio (HAR) system. With the take-over of the Deerfoot Trail Road Weather Information System (RWIS) subsystem, and the construction of the southwest leg of Anthony Henday Drive, Alberta Infrastructure will be assuming responsibility for some major urban expressways. To ensure that current ITS requirements and future opportunities are identified, and that deployment of ITS technologies occurs systematically, the department should:

- Survey, study and assess, with the assistance of consultants, travellers' needs along Highway 1, between Calgary and the Banff Park gates, and along Highway 2, between Edmonton and Calgary, including Deerfoot Trail and the southwest link of Anthony Henday Drive.

- Support research to develop, fine-tune and verify new ITS-driven simulation modeling for Deerfoot Trail. Using the new models and surveyed travellers' demands, predict new travel patterns and behaviour, and develop new scenarios of demands for the highway infrastructure.

- Based on the above, and in collaboration with stakeholders including Edmonton and Calgary, develop an initial Traveller Information/Traffic Management Plan for the above highways with various ITS scenarios and alternative costs. The plan will:

  i. Develop appropriate system architecture that will conform to the national ITS architecture.

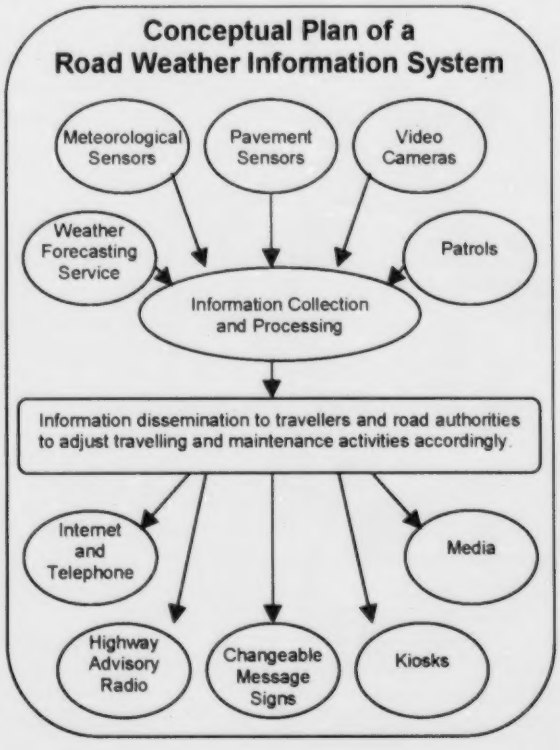
  ii. Determine the technical requirements of a Road Weather Information System (RWIS). The system will be to serve both maintenance contractors and the travelling public. This will include continued dialogue with Environment Canada on any joint development.

  iii. Determine the technical requirements for pre-trip and en-route traveller information, including any standards and data dictionaries being developed.

  iv. Identify stakeholders.

  v. Identify and resolve overlapping jurisdictional and technical issues that will impact the department's North-South (CANAMEX) Trade Corridor program and the planned ITS development along this corridor, and ensure system interoperability.

  vi. Assess the operation of Deerfoot Trail for opportunities for ITS solutions.



vii. Assess opportunities for integration of ITS in the planning and design of the southwest leg of Anthony Henday Drive in Edmonton.

viii. Assess the need for an operations control centre.

Some of the technologies that could be assessed for deployment are:

i. Permanent highway advisory radio (HAR) systems at strategic locations to broadcast messages on the FM band.

ii. Additional changeable message signs (CMS) at key locations along the highways.

iii. Some initial testing of an incident detection system with closed circuit television cameras and induction loops along Deerfoot Trail and Anthony Henday Drive. This could be integrated with CMS and HAR and tied to existing city emergency services and dispatch call centres.

iv. Tie-in of all CMS and HAR to the Road Weather Information System (RWIS) with the potential for fog/smoke sensors and micro and macro-weather pattern prediction models.

v. Temporary speed monitoring and display systems to warn travellers of construction and maintenance activities.

vi. Advanced video-based traffic data gathering equipment.

vii. Microwave, cellular, and land-based fibre optics infrastructure.

viii. Internet-based interactive information systems at homes, businesses and public kiosks.

ix. Over-height warning detection, weigh-in-motion scales, and automatic vehicle identification systems for commercial vehicles ("Intelligent CANAMEX Trade Corridor").

- Once a Traveller Information/Traffic Management Plan has been developed, identify funding sources and potential partnerships, and proceed with incremental implementation provided funding is available.

Current Situation and Estimated Timeline

Approval has been received to spend $600,000 upgrading traffic signal controllers and related components this year. This money will be used to review the condition of traffic signal controllers and related components and to proceed with first priority upgrades. The upgrading of traffic signal controllers will be of an ongoing nature.

The survey of travellers' needs is likely to commence in 2001, pending available funding. The research to develop, fine-tune and verify new ITS-driven simulation modeling for Deerfoot Trail is currently underway and is estimated to take about 2 years. Based on these initiatives, a Traveller Information/Traffic Management Plan could be developed starting in 2002. However, as the design work for the southwest leg of Anthony Henday Drive is already underway, there may be some urgency to fast-track some of the Traveller Information/Traffic Management planning work in order to integrate potential ITS applications in the design.

The following chart shows the estimated timelines for the action items under this activity stream.

TASK			2000		2001				2002				2003				Comments
			Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	
Traveller Information/ Traffic Management System	Traffic Control	Review traffic signal controllers and develop an upgrade plan															Funding is approved
		Upgrade traffic signal controllers															Ongoing initiative
	Traveller Information/ Traffic Management	Survey travellers' needs on key routes															
		Support ITS modeling for Deerfoot Trail															Initiative currently underway
		Develop Traveller Information/ Traffic Management Plan															
		Identify potential funding sources and proceed incrementally															Will be an ongoing initiative

7. Cost and Responsibility Summary

The following table shows the assignment of responsibility to department areas with respect to leading, funding and participating in the four streams of activity. The sponsoring areas would be responsible for funding these initiatives, including the initial studies and possible future deployment. Some of the associated costs identified would be internal, such as staff time and travel costs.

It is important to note that the costs identified over the next 3 to 5 years are largely associated with planning. Because of the go-slow approach of this Plan, deployment of ITS will be limited over the next 3 to 5 years.

The potential long-term deployment costs, in the order of magnitude, have been estimated and indicated in the table. The development of plans for the Intelligent CANAMEX Trade Corridor and Traveller Information/Traffic Management System will more accurately identify capital deployment and operating costs, and may recommend additional costs for the deployment of ITS technologies. Given the preliminary and planning nature of the action items, it is premature to estimate operating costs at this time.

Legend ● Lead ◓ Co-lead / Major participant ○ Participant		Infrastructure Policy and Planning	Technical Standards	Program Management	Regions	Driver Safety	Vehicle Safety & Carrier Services	Dangerous Goods and Rail Safety	Inspection Services	Transport Engineering	Corporate Services	Contractors	Consulting Engineers	Suppliers	Other Agencies & Organizations	Estimated initial study costs over the next 3 - 5 years ($ 000)	Estimated long-term capital deployment costs ($ 000)
Partnerships for knowledge and success	Establish ITS Standing Committee	●	◓			◓					◓					Internal costs	n/a
	Organize seminars on ITS	◓	●			○					○			○	◓		
	Development of Canadian ITS architecture and standards	●	◓						○						◓		
	Keep abreast of ITS developments	◓	●	○	○	◓	○	○	◓	○	◓	○	○	○	◓		
	Explore new technologies	◓	●	◓	◓	◓	◓	◓	◓	○	○	○	○	◓	○		
	Development of telecommunications agreements	◓	●		○						○				○		
Traffic Safety Data Collection	Prepare systems requirements and business case					●	◓				○			○	◓	To be determined	To be determined
	Pursue unique funding arrangements					●	◓				○			○	◓		
	Contact other jurisdictions					●	◓				○			○	◓		
Intelligent CANAMEX Trade Corridor	Initiate discussion on a CANAMEX ITS/CVO Plan and develop terms of reference	●	◓	○	○		◓	◓	◓	◓	○				◓	Internal costs	$500 to $1,000 per inspection station
	Develop a CANAMEX ITS/CVO Plan	●	◓	○	○		◓	◓	◓	◓	○				◓	$500	
Traveller Information/ Traffic Management System	Review traffic signal controllers, develop an upgrade plan	○	●	○	◓							○	○		○	$150	n/a
	Upgrade traffic signal controllers		●	○	◓							○	○	◓	○	n/a	$10,000
	Survey travellers' needs on key routes	◓	●	○	○	○	○	○	○	○	○		◓		◓	$300	n/a
	Support ITS modeling for Deerfoot Trail	○	●							○			○		◓	$150	n/a
	Develop Traveller Information/Traffic Management Plan	◓	●	◓	◓	○	○	○	○	○	○		◓		○	$300	n/a
	Identify potential funding sources and proceed incrementally	◓	●	◓	◓	○	○	○	○	○	○		◓		○	Internal costs	$5,000 to $10,000[1]

[1] Based on US Department of Transportation ITS Joint Program Office "ITS Benefits Database and Unit Cost Database", http://www.mitretek.org/its/benecost.nsf/CostHome?OpenFrameSet

8. Conclusions and Moving Forward

Fueled by the rapid advancement of computer and information technology and consumers' demand for innovation and efficiency, ITS technologies will continue to improve and evolve at a phenomenal rate. This new information and knowledge driven economy is a reality and not just a fad. The payback of deploying ITS technologies could be significant, if a focused, systematic and incremental approach is taken.

As a first step, this strategic plan focuses on Alberta Infrastructure's core businesses, and provides directions and strategies for the department to explore ITS opportunities. It represents a first, small but cautious and sensible step toward deploying ITS technologies to help improve the department's service delivery. Of the four streams of activity, the Intelligent CANAMEX Corridor and the Traveller Information/Traffic Management System require further work to define system needs, identify opportunities and develop system architecture. This is consistent with a systematic and incremental approach.

When more action items are identified in the future and results are more quantifiable, the next update of the strategic plan should include performance indicators to monitor the progress and measure the effectiveness of all ITS initiatives.

The ITS Standing Committee will play a significant and critical role in promoting and coordinating all ITS initiatives. The various ITS initiatives will be led by different divisions; however, it will be the Standing Committee's responsibility to keep abreast and advise the department of new ITS technologies and opportunities, coordinate the different concurrent activities, and ensure compatibility and interoperability among different systems and technologies.

Implications

As the majority of the action items in the next 3 to 5 years involve assessing needs, exploring opportunities and developing plans, most of the work will likely be done by consultants, and the immediate impact on the department's resources would therefore be minimal. The estimated costs of these studies are shown in the preceding section. As these initiatives proceed to deployment, there will be an impact on the department's resources. The extent of the impact will be assessed and determined by the deployment plans.

The decision to proceed further with deployment will be based on results of benefit-cost analyses, meeting the department's needs and improving the department's service delivery, as indicated in the Guiding Principles and Strategies section. Eventually, the goal is to integrate ITS features in the design and construction of highway infrastructure so that deploying ITS would not be a separate consideration in most cases.

Recognizing the emerging trend, many provincial/state and municipal jurisdictions are developing ITS strategic plans. The US and Canadian federal governments are developing national ITS architectures and providing technical and financial support for ITS initiatives. Regardless of the direction and strategy taken by Alberta Infrastructure with respect to ITS, technologies will continue to evolve and advance. Maintaining the status quo means continuing the current ad hoc approach.

The adoption of this plan does not necessarily imply that the department fully embraces and actively promotes ITS. With a recurring theme of taking an incremental and building block approach, this plan provides directions and strategies to explore opportunities for using ITS to improve the department's program and service delivery.

Recommendations

- The Executive adopt this ITS strategic plan.
- The Executive establish an ITS Standing Committee and appoint an Executive Sponsor. Each division head may appoint a representative to the Standing Committee with the understanding that this appointment may require a fair time commitment. The Committee may assess the need for additional resources at a later date to meet future needs and priorities.
- The sponsoring areas continue to be responsible for funding the initial studies and long-term capital deployment identified in this plan.
- The Standing Committee initiate work with the lead areas to undertake the action items identified in the action plan.

In conclusion and to move forward, a firm commitment from the Executive and support and cooperation of all department areas are key to the success of future ITS initiatives.